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EVALUATING THE EFFECTIVENESS OF
A PARENT TRAINING PROGRAM ON
ADOLESCENT MOTHERS AND
THEIR COMMUNICATIVE INTERACTIONS
WITH THEIR CHILDREN

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Arts

in

The Department of Communication Sciences and Disorders

by
Sonja Lee Pruitt
B.A., Louisiana State University, 2000
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SLP

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ABSTRACT

The purpose of the current study was to evaluate the effectiveness of the “Tips About Talk” parent-training classes for increasing adolescent mothers’ knowledge about their children’s speech and language development and the quality of mothers’ interactions with their children. Seven mother-child dyads served as participants. All of the participating mothers were single, African American, and enrolled in a GED program. The mean age of the mothers was 20.57 years, and their mean educational level was 9.29 years. Their children were between the ages of 24 and 67 months.

The experimental treatment involved four “Tips About Talk” parent-training workshops. The control treatment was four nutrition parent-training workshops. Both treatments were administered in a group setting. The dependent measures, a questionnaire and a mother-child language sample, were collected prior to the first workshop and following the final workshop. The 30-item questionnaire asked the mothers to rank their knowledge of child speech and language and their use of positive talking strategies on a six-point Likert scale.

At post-test but not at pre, the mothers in the experimental group provided significantly higher ratings for the speech and language questions than those in the control group. At post-test, the experimental group also produced fewer word tokens and a reduced rate of prohibitions than did the control group. In addition, a trend of decreased MLU was noted at post-testing for the experimental group. No significant differences were found at post-test between the experimental and control groups for the use of behaviors that are known to facilitate children’s preliteracy skills. The results of the current study suggest that group-

based parent-training can influence the knowledge and behaviors of teen mothers in a positive way.

CHAPTER 1

INTRODUCTION

Adolescent mothers are not merely a random sample of the population; they often carry with them a host of other characteristics that make parenting difficult. Although adolescents are physically capable to give birth, many are not well informed nor well prepared for the responsibilities of parenthood. These mothers often have less education, less financial support, less parenting knowledge, and are less cognitively ready to raise a child (Black, 1997; Sommer et al, 1993, Hoffman, 1998; Patterns, 1990). In addition, early parenthood has critical implications for the children of adolescent mothers. Indeed, the children of adolescent mothers often encounter more developmental problems and have more delayed communication skills at the preschool level when compared to children of older and/ or more educated mothers (Brooks-Gunn, 1986; Sommer, 1993). Taken together, these findings indicate that there is a need to both educate teen mothers and provide support for their children.

Traditionally, speech-language pathologists have provided direct language intervention to children once a language impairment diagnosis has been confirmed. Recently, other service delivery models have been advocated. These have included training parents, caregivers, and teachers through a preventative and/ or general education model of service delivery. Current research has shown that training mothers results in positive outcomes for children who are language impaired as well as for children who are developing language typically (Girolametto, 1988; Justice & Ezell, 2000; Farho et al 2001; Girolametto et al, 1996a; Girolametto et al, 1996b; Fey et al, 1993).

To continue this line of intervention research, the current study examines the effectiveness of a parent-training program on the abilities of teen mothers to foster their children's language development during play and storybook reading. This literature review begins with a discussion of the disadvantages teenage mothers face in childrearing. Then, research on different parent-training programs is evaluated. The literature review ends with a description of the proposed research and a list of the research questions.

Review of the Literature

Disadvantages Teenage Mothers Face in Childrearing. Camp (1995) compared the cognitive status and child rearing attitudes of adolescent mothers to those of older women. Group 1 was comprised of 106 adolescent mothers whose average age was 16.2 years, with an average education level of 9.8 years. Group 2 was comprised of 47 women, whose average age was 23 years, and average level of education was 11.9 years. The groups were administered an IQ test and a battery of questionnaires, which included the Shipley Hartford Institute of Living Scale (Ernhart, 1969), three scales from the Parent Attitude Research Instrument (Chorost, 1962; Cross, 1968; Schaefer, 1958) and 28 questions from the Authoritarian Family Ideology Scale (Ernhart, 1969). The results indicated that the older women had significantly higher cognitive abilities (older IQ mean = 110; younger IQ mean = 103.8) and were less authoritarian in outlook than the younger women (older authoritative mean = 15.3; younger authoritative mean = 18.1).

In another study, Sommer, Whitman, Borkowski, Schellenbach, Maxweel, and Keogh (1993) compared cognitive readiness for parenting in 171 pregnant adolescents, 48 nonpregnant adolescents, and 38 pregnant adults. General descriptive information

about the three groups was as follows. The pregnant adolescents had mean scores of 10.55 for years of education, 88.39 for IQ, 63.37 for SES, and 17.17 years for age. The nonpregnant adolescents had mean scores of 10.24 for years of education, 94.04 for IQ, 44.48 for SES, and 15.97 years for age. For both groups of adolescents, their SES levels were determined from their parents' education level and occupation. The pregnant adults' mean scores were 13.29 for years of education, 90.92 for IQ, 45.5 for SES, and 25.25 years for age. For the pregnant adults, SES was based on their education level and occupation.

In order to assess the participants' cognitive readiness for parenting, the following measures were collected: a 40-item questionnaire to assess a mother's knowledge about the development of infants and young children, the Empathic Awareness and the Physical Punishment subscales from the Adult-Adolescent Parenting Inventory (Bavolek, 1985), a parenting questionnaire that measured authoritarianism, nurturance, rejection, and independence, and the Role Reversal subscale of the Adult-Adolescent Parenting Inventory (Bavolek, 1985). In addition to these measures, three separate assessment procedures were used to measure parenting. These included the Parenting Stress Index (Abidin, 1983) and two behavioral ratings of 15 minutes of videotaped mother-infant interaction. For the expectant mothers, the forms were collected during the last trimester of their pregnancy and again six months after they gave birth. The nonpregnant participants were seen within the same time frame.

There were two interesting sets of comparison in this study. First, comparisons were made between the pregnant adolescents and the nonpregnant adolescents. The mean scores for parenting attitude were 59.3 for the pregnant adolescents and 53.29 for

the nonpregnant adolescents. The mean scores for parenting style were 81.87 for the pregnant adolescents and 81.67 for the nonpregnant adolescents. Finally, the mean scores for knowledge of parenting skills were 22.65 for the pregnant adolescents and 23.63 for the nonpregnant adolescents. None of these indices resulted in significant group differences. Thus, the pregnant adolescents were found to be no more knowledgeable about child development than their nonpregnant peers.

The second interesting set of comparisons was between the pregnant adolescents and the pregnant adults. These comparisons were made both prenatally and postnatally. The mean results are presented in Table 1.

Table 1.

Comparison of pregnant adolescents and adults.

Sample	Attitude	Style	Knowledge
Prenatal			
Pregnant Adolescents	59.53	81.87	22.65
Pregnant Adults	64.61*	86.71*	26.47*
Postnatal			
Pregnant Adolescents	60.76	78.07	23.64
Pregnant Adults	67.00*	83.83*	31.04*

* significant difference ($p \leq .05$)

For both pre and post measures, the adolescent mothers were significantly less knowledgeable about child development, displayed a less desirable parenting style, and had more undesirable attitudes about their parenting roles than the pregnant adults. When the group means were adjusted for the mothers' IQ, SES, race, and educational level, the pregnant adolescents still scored below the pregnant adults on these measures.

Research from the Field of Speech-Language Pathology. Researchers in speech-language pathology have not focused their work on adolescent mothers and their children.

Nevertheless, researchers in our field have studied the effects of poverty and low-birth weight on children's speech and language development, and adolescent mothers often encounter both of these conditions. Studies of these two conditions are reviewed next.

Hammer and Weiss (2000) investigated how African-American mothers view their children's language development and the structure their children's language-learning environment. The participants were 12 mother-child dyads. The dyads were divided into two groups based on their economic status. Six had annual incomes below \$15,000, and six had annual incomes that ranged from \$19,000 to \$50,000. The mothers in the Low-SES Group averaged 28.3 years of age at the time of the study and 18.1 years of age when they gave birth. They averaged 11.8 years of education. The mothers in the Middle-SES Group averaged 29.5 years of age at the time of the study and 25.1 years of age when they had their first child. They averaged 14.7 years of education. Data collection involved semi-structured interviews with the mothers, observation of the dyads informally, observation of the mothers and children interacting, and observation of the dyads at play.

The results of this study indicate that the mothers of both the low-SES and mid-SES groups felt that their children learned to talk by experiencing communicative interactions. Over half of the mothers in both groups also reported that they set aside time to play with their children. Nevertheless, the mothers' observed play was found to differ between the two groups. In particular, the mid-SES mothers were observed engaging in structured play interactions, and they maintained attention with their children. In contrast, more of the low-SES mothers participated in parallel play, and/or they commented that their child did not seem to be enjoying or responding to the play.

Another problem adolescent mothers face is poor prenatal care. They often do not gain adequate weight throughout pregnancy. Maternal weight gain in pregnancy has been found to correlate with fetal birth weight and premature birth (Patterns, 1990). The resultant, low-birth weight has been linked to delayed language development. A study that documented this link was completed by Halsey, Collin, and Anderson (1993). These authors compared extremely low birth weight (ELBW) children and their peers at the preschool level. The purpose was to document the developmental and educational progress of a cohort of predominately white, middle class ELBW children and to compare these children to two groups of birth weight peers. A total of 120 children participated in the study. Randomly picked hospital records were used to solicit these children. Sixty children who weighed less than 1500 grams at birth were considered the ELBW group. Thirty children who weighed between 1500 and 2500 grams at birth and 30 children who weighed greater than 2500 grams at birth made up the control groups. The researchers administered a battery of language and motor skills tests when all of the children were four years of age. The data showed that ELBW children scored significantly lower than the other two groups on all of the measures. However, mean scores for the ELBW group were within one standard deviation of the test mean for all of the tests except the motor skills test. On this test, the ELBW group was below the average range.

In summary, teen mothers face a number of parenting challenges. In addition to being young and under-educated, these mothers lack knowledge of child development and knowledge of effective parenting strategies. Teen mothers also are at risk for being poor and having a low-birth weight child. Both poverty and low-birth weight have been

shown to affect a child's speech and language development. The next section of this literature review presents research that has examined various parent-training programs.

Parent-Training Programs. A total of eight parent-training studies were found in the literature. Four studies involved children with language impairments, and four studies evaluated the usefulness of a parent-training program on the language skills of normally developing children. Only two of the studies included adolescent mothers as research participants.

Parent-Training Programs for Children with a Language Impairment. Niccols and Mohamed (2000) researched the effectiveness of training parents of infants with developmental delays. Twelve parents made up the experimental group and five parents from a waiting list made up the control group. On average, the parents were high school educated, married, and had other children in the family. As a group, the parents were mixed in terms of age, socio-economic/ cultural status, and psychiatric and cognitive functioning. Parents in both the intervention and control groups completed six standardized questionnaires. Three of the questionnaires asked mothers to rate their level of parental distress. The fourth evaluated their personal competence, the fifth depression, and the sixth the quality of their parent-child relationship.

After the questionnaires were completed, the intervention group attended a Skill Building Group for eight weekly two-hour sessions. The eight group sessions were designed to improve parents' understanding of their impact on their infant, enhance their parental attitudes about parenting commitment, and increase their feelings of personal competence and control. After the group training sessions, the same questionnaires were given to both groups. The results indicated that the intervention group showed

improvement in their scores. The average standardized difference (d) between the means for the intervention group was .40. In contrast, the parents in the comparison group reported an increase in depression or sadness over time that showed a trend toward statistical significance ($d = .05$).

Girolametto, Pearce, and Weitzman (1996a) studied the effects of training parents to administer focused stimulation to their toddlers. Twenty-five dyads participated in the study. All of the children were classified as having expressive vocabulary delays because they were between 23 and 33 months of age and only at the single-word stage of language development at the beginning of the study. All of the mothers had completed high school, and the majority had completed additional postsecondary education. The average age of the mothers was 35 years. All of the families were middle class. Pretesting included two one and a half hour sessions. During the first session, the dyads were observed in free play. While the groups were playing, a speech-pathologist completed the Speech Sounds Checklist (Girolametto, Pearce, & Weitzman, 1994). Pre-testing measures also included the Sequenced Inventory of Communication Development (SICD; Hedrick, Prather, & Tobin, 1984), an adapted form of the Children's Developmental Inventory (CDI; Fenson et al, 1993), the Symbolic Play Test (Lowe & Costello, 1988), and the Stanford-Binet Intelligence Scale (Thorndike, Hagen, & Stattler, 1986).

In order to train the parents, The Hanen Program for Parents (Girolametto et al., 1986; Manolson, 1992) was administered. Key concepts in The Hanen Program are following the child's lead, modeling language that is contingent on their child's focus, and taking turns with the child. Girolametto et al.'s study included eight evening group

sessions and three home visits to provide parents with individual feedback. The authors' use of The Hanen Program also included focused stimulation interaction strategies. These strategies included giving the parents a list of 10 target words that they were to incorporate into existing daily routines. The examiners also encouraged the parents to select additional lexical targets once the children used the original target words three times spontaneously, and they showed the parents how to model two-word combinations using the target words.

Transcriptions from the pre and post-testing play sessions were analyzed for three maternal behaviors (i.e. talkativeness, complexity, and labeling) and for three child behaviors (i.e. vocabulary, talkativeness, and complexity). The results showed that the mothers in the experimental group used fewer words per minute (40.7) than those in the control group (51.9), and they also significantly reduced their MLU (pre=3.84; post=3.15), while the control group did not (pre=3.92; post=3.73). The experimental mothers also used a greater number of target words (49.1) than the control mothers (29.3). The children in the experimental group increased their mean vocabulary size from 37.5 to 187.7 words. The control group showed less of an increase, 18.7 to 65.4 words. Finally, the children in the experimental group increased the number of different target words they produced as compared to the control children (E: 0.2 to 3.0 words versus C: 0.1 to 1.0). Findings for this study show that parents can be trained to positively affect their children's expressive vocabulary by modifying their own behaviors.

Girolametto, Pearce, and Weitzman (1996b) also examined the effectiveness of parent-training classes on mother-child interactions and child language development. The

participants were sixteen preschoolers with language impairments and their mothers. The children were between the ages of 2 and 3;6, and all were at the single word stage of language acquisition as measured by the CDI. The average age of the mothers was 32 years for the experimental group and 33 years for the control group. All of the mothers had completed high school. Five in the experimental group and four in the control group had completed additional post secondary education.

The subjects were randomly assigned to an immediate treatment group or a delayed treatment group. Pretesting was conducted in the two weeks preceding the treatment and included the CDI, The Speech Sounds Checklist (Manolson, 1992, p. 145), and the Child Behavior Checklist (Achenbach, 1992). From the CDI and Speech Sounds Checklist, 20 words were individually selected for each child. These items were words that the children did not use. The treatment program included The Hanen Program for Parents (Girolametto et al., 1986; Manolson, 1992) and involved seven evening sessions to teach parents strategies and three individual sessions to provide parents with feedback regarding their behaviors and their child's behaviors.

The results showed that children in the experimental group produced a mean of 3.9 target words, which was twice as many target words as the children in the control group, 1.5. The experimental group also increased their use of symbolic play gestures from 37.7 to 40.3, while the control group's number of gestures did not change (31.9 at pretesting, 31.5 at post-testing). Like Girolametto et al. (1996a), the findings of this study indicate that a parent-training program can lead to changes in a child's language abilities.

Finally, Fey, Cleave, Long, and Hughes (1993) studied the effectiveness of two intervention programs that were designed for preschool-age children with language

impairments. A speech-language pathologist administered one therapy, and the parents administered the other. Both focused on grammar. The participants included 30 parent-child dyads. The children were between the ages of 3;8 and 5;10 and showed delays in grammar as determined by clinical observation and standardized test scores. The average age of the parents was 33.48 across all of the treatment groups.

The families were randomly assigned to three groups: the clinician-treatment group, the parent-treatment group, and the delayed-treatment group (control group). The clinician-treatment group consisted of four to six children. These children received one, one-hour individual session per week and two group sessions, each one-hour long. The parent-treatment group was comprised of four to six parents and their children. The parents in this group were seen in two-hour group sessions that did not involve the children. Parent meetings were conducted once a week for the first 12 weeks of the program and once a month for the remaining two months of intervention. During the 12-week training phase, the project speech-language pathologist made three visits to each child's home to observe the parents administering the techniques with their children, provide feedback on their performance, and demonstrate the techniques to the parents when necessary. In the final two months of intervention, each parent and child made a monthly visit to the clinic. This visit lasted an hour. Its purpose was to ensure that the parents were continuing to use the procedures and to assess the child's progress.

The dependent measures of this study were calculated based on language samples elicited in 30-minute play interactions between the child and his or her primary caregiver. The samples were taken immediately prior to the four and half month intervention phase and during the two weeks following the completion of the intervention. For each child,

the speech samples were analyzed by calculating a Developmental Sentence Score (DSS; Lee, 1974). The results indicated that the mean DSS of the children in the clinician-treatment group rose from 4.23 to 5.48. The children in the parent-treatment group also showed an increase in their mean DSS scores from 4.37 to 5.85. However, the delayed treatment group did not show an increase in their DSS mean score. These findings show that parent-training classes can change the quality of mother-child interactions, and like direct intervention, they can lead to positive gains in child language development.

Parent-Training Programs for Normally Developing Children. Black and Teti (1997) evaluated the effectiveness of a parent-training program that required mothers to view a videotape. The videotape used in the study was “Feeding Your Baby With Love.” This video was developed for this study by assembling an advisory group of adolescent African American mothers of healthy infants, and it included models of appropriate mealtime communication between mothers and their children. Fifty-nine first-time, African American adolescent mothers of infants participated in the study. Prior to the intervention phase of the study, all of the mothers were videotaped feeding their babies. They also completed a survey that rated maternal attitudes toward mealtime communication. Twenty-six of the mothers were then assigned to the intervention group, and 33 were used as controls. After the mothers in the intervention group watched “Feeding Your Baby With Love,” all of the mother-child dyads were video taped again during mealtime. The video taped sessions of the mother-child mealtimes were coded using a modified version of the Parent Child Early Relational Assessment (Farran, 1990). This version used a five-point scale, with higher scores indicating more optimal behavior.

Results indicated that the intervention group showed a positive increase in the maternal attitudes toward mealtime communication (pre= 21.8 versus post= 30.1). The amount of communication the intervention group produced during mealtime also increased (pre=4.2 versus post= 4.4). Scores for the control group decreased rather than increased (attitudes: pre= 22.1 versus post= 21.1; amount of communication: pre=4.2 versus post=4.1).

Emmons and Nystul (1994) examined the effects of a parent education program on self-concept and democratic parenting attitudes. In this study, the treatment group was comprised of nine adolescent females. Five of the females were pregnant and four had children. All attended a public high school and were enrolled in a prenatal course and a course called PREP. The prenatal class met three times a week for one hour, and the PREP program met once a week for one hour for 16 weeks. The prenatal class covered a number of topics such as human reproduction, sexually transmitted diseases, child development, preparing for childbirth, labor, and delivery. The PREP program addressed topics such as communication with family and friends, building self-esteem, dating relationships, choosing a life partner, and parenting skills. The nine females in the intervention group were compared to two other groups of women. One comparison group was composed of nine adolescent mothers. This group had attended the prenatal course the previous academic year but did not attend the PREP program. The other comparison group was composed of ten adolescent females who were not pregnant and did not have children. This second group did not attend the prenatal course or the PREP program.

Two attitude scales, the Coopersmith Self-Esteem Inventory (CSEI; Coopersmith, 1981) and the Attitude Toward the Freedom of Children Scale (AFTC; Shaw & Wright, 1967), were administered to the treatment and comparison groups at the beginning and end of the PREP intervention series. Based on the post-test scores on the CSEI, no significant difference was found among the three groups in terms of self-concept. However, post-test scores on the AFTC showed a significant difference among the three groups in terms of parental attitudes, with the treatment group scoring lower (-3.000) than did the two comparison groups (.666 and -.3000). According to the authors, a low score is indicative of democratic parenting skills, and a high score is associated with an authoritarian parenting attitude. Thus, Emmons and Nystul interpreted these group differences as demonstrating the effectiveness of the PREP program.

In a third study, Girolametto (1988) studied 20 mother-child dyads, nine in the experimental group and 11 in the control group, in a parent-focused intervention study. Their children ranged in age from 19 to 62 months. No significant differences were found between the groups for maternal age or years of education. Prior to the intervention program, the Griffiths Mental Developmental Scales (Griffiths, 1970) were administered, and a 20-minute sample of the parent-child interactions were videotaped in the program center's playroom. The SICD also was administered to the children. Following this initial collection of data, the experimental group began The Hanen Early Language Parent Program (Girolametto et al., 1986; Manolson, 1992). The intervention sessions lasted 11 weeks and involved eight group sessions and three individual home visits. As mentioned earlier, The Hanen Program focuses on observation, following the child's lead, and the use of conversational strategies during everyday activities. After

completing the training, the SICD was re-administered and the mother-child dyads were videotaped again. The middle 10 minutes of the videotaped samples were transcribed and coded for turns and missed turn opportunities.

The results showed that at post-testing, the mothers in the experimental group as compared to those in the control group used a lower percentage of turns (E pre: 98, post: 94; C pre: 98, post: 98); a reduced MLU (E pre: 1.4, post: 1.2; C pre: 1.4, post: 1.4); and a lower percentage of simultaneous turns (E pre: 13, post: 13; C pre: 15, post: 12) when compared to the control group. The mothers in the experimental group also showed a greater increase in means than the control mothers for the following behaviors: percent of time continuing the topic (E pre: 48, post: 62; C pre: 49, post: 52), percent of time gazing (E pre: 1.6, post: 5.9; C pre: 2.2, post: 1.8), and percent of time redirecting the child (E pre: 50, post: 32; C pre: 49, post: 46). The results indicate that the treatment program helped the mothers develop a conversational style that was effective in ensuring a heightened amount of turn taking and responsiveness and a decreased amount of topic control in their interactions with their children. Girolametto interpreted these results as indicating that the mothers and children who received therapy became better at negotiating dialogue.

Finally, Justice and Ezell (2000) investigated the efficacy of a home-based book reading intervention program. The goal of the program was to enhance the parents' use of print-referencing behaviors to stimulate children's early print and word awareness. Twenty-eight parents and their typical four-year-old children participated in the study. The parents in the study included 26 mothers and two fathers. All of them were Caucasian, and they all had completed at least high school. After being matched on

maternal education and children's receptive vocabulary skills, the dyads were assigned to either the control or experimental groups. The experimental group received training in the use of print-referencing behaviors. The training included viewing an instructional video that demonstrated the use of print-referencing behaviors, reviewing the behaviors, conducting a practice session, and receiving verbal feedback regarding their use of the five target behaviors. The five target behaviors were words in print, alphabet knowledge, print recognition, word segmentation, and print concepts.

Analysis of this study was conducted to determine the effects of training on parental reading behaviors. The study also was designed to examine the extent to which parental use of print-referencing behaviors influenced children's early literacy skills. The mean rates of the parents' references to print at pre and post-testing are presented in Table 2. As can be seen, four of the five target behaviors in the experimental group increased while the control group's use of these behaviors did not.

Table 2.

Mothers' use of target behaviors.

Measure	Group	Pretest	Posttest
Comments about Print	Experimental	.11	2.14*
	Control	.01	.01
Questions about Print	Experimental	.10	1.25*
	Control	.05	.04
Requests about Print	Experimental	.07	.65*
	Control	.06	.08
Tracking Print	Experimental	.62	2.80*
	Control	.77	.46
Pointing to print	Experimental	3.51	7.91
	Control	3.9	3.87

*p values are significant ($p \leq .05$)

Percentages of child utterances that included reference to print are presented in Table 3. The results show that the children in the experimental group outperformed the control group on three of the five early literacy subtests. Alphabet knowledge and print recognition were the only ones that did not lead to a group difference.

Table 3.

Children's data from literacy subtests.

Measure	Group	Pretest	Post-test
Words in Print	Experimental	.30	.64*
	Control	.30	.41
Alphabet Knowledge	Experimental	.85	.88
	Control	.79	.83
Word Segmentation	Experimental	.43	.57*
	Control	.45	.46
Print Recognition	Experimental	.10	.49
	Control	.11	.41
Print Concepts	Experimental	.54	.80*
	Control	.55	.64

*p values are significant ($p \leq .05$)

Finally, in a survey following the experiment, the parents were asked to rate the extent to which they believed that the training influenced their children's skills in six areas: vocabulary, word recognition, alphabet knowledge, print concepts, interest in print, and overall early literacy and language skills. The results of the parents' perceptions are presented in Table 4. As can be seen, ratings of the experimental group were higher than those of the control group for two of the six questions. Thus, this study showed three things. First, the parents in the experimental group increased their use of the target behaviors. Second, the children responded to their parents' use of these literacy behaviors. Third, the parents felt that their children benefited from these new techniques.

Table 4

Mothers' ratings of their perceptions.

Item	Experimental	Control
Vocabulary	3.4	3.4
Word Recognition	4.1	3.8
Alphabet Knowledge	4.1	2.2*
Print Concepts	4.6	2.9*
Interest in Print	4.4	3.7
Overall Early Literacy	4.1	4.0

*p values are significant ($p \leq .05$)

The last study presented here is one that was started at LSU in 1999 and is ongoing. This study is reviewed because it provides the framework for the current research project. In 1999, Oetting and Farho created the “Tips About Talk” program to provide graduate students in Communication Sciences and Disorders with clinical experience that involved a preventative model of service delivery. The program is comprised of four one-hour workshops. The focus of the workshops is to educate parents about child speech and language development, model positive talking strategies, and provide role-playing opportunities for mothers to practice these strategies. The workshops are group-based, and children are not present.

In 2000 and 2001, the effectiveness of “Tips About Talk” was evaluated by a questionnaire given before and after each workshop series. In the fall of 2000, 172 parents and childcare providers attended the workshops. The questionnaire contained 32 items, including 22 knowledge-based items (i.e. I know the difference between receptive and expressive language) and 10 strategy-based items (i.e. When reading with a child, I use props on the book). The participants' averages on the knowledge and strategy based

items increased from 3.06 (.88) and 4.07 (.63) to 4.22 (.87) and 4.44 (.52), respectively ($p \leq .05$).

In the spring of 2001, 53 participants attended the workshops. At this time, the questionnaire was modified to include fewer items and less professional jargon, but again the participants indicated a positive change in the questionnaire responses from pre to post-test. Specifically, the participants' averages on the knowledge-based and strategy-based items increased from 3.69 (.83) and 4.36 (.55) to 4.58 (.59) and 4.73 (.43), respectively.

Tables 5 and 6 were created to help summarize the aforementioned intervention studies. Table 5 presents a list of the measures that examined mothers' perceptions of either themselves, their children, or their family. Table 6 presents a list of measures and findings of mother-child interactions that have been examined across the previous studies. Based on the results from the five parent-training programs provided in this literature review, the parents who attended parent-training programs indicated changes in their knowledge and attitudes as measured by pre and post training surveys. In at least four studies reviewed here, parents also demonstrated changes in their behaviors in observed settings.

Purpose of Current Study

The purpose of the current study was to further evaluate the effectiveness of the "Tips About Talk" parent-training classes for increasing mothers' knowledge about their children's speech and language development. This study also examined the effect these classes have on the quality of the mothers' interactions with their children. Given both the paucity of research that has been completed with adolescent mothers and the need to

educate these mothers, the current study was designed to focus specifically on this subgroup of mothers. The following questions guided the research.

1. Do mothers' self ratings of their knowledge of child speech and language development increase as a result of attending the "Tips About Talk" sessions?
2. Do mothers' language interactions with their children change as a result of attending the "Tips About Talk" sessions? The maternal behaviors that were measured included: MLU, complete and intelligible utterances per minute, type and token of words used in a random 100 utterance sample, number of directives, number of affirmatives, and number of prohibitions.
3. Do mothers' use of behaviors that facilitate children's preliteracy skills change as a result of attending the "Tips About Talk" sessions? The maternal behaviors that were examined included: verbatim reading, comments about print, literacy events, and spelling.

Table 5.

Measures of maternal perceptions.

Maternal Perceptions	Author	Significance
Parent-Child Dysfunctional Interaction	Niccols & Mohamed (2000)	*
Parental Distress		*
Depression		*
Parenting Confidence		
Family Functioning		
Maternal Attitudes toward Mealtime Communication	Black & Teti (1997)	*
Self Concept	Emmons & Nystul (1994)	
Democratic Parenting Attitudes		*
Vocabulary	Justice & Ezell (2000)	
Word Recognition		
Alphabet Knowledge		*
Print Concepts		*
Interest in Print		
Overall Early Literacy		
Strategy-based Questions	Farho et al (2001)	*
Knowledge-based Questions		*

Table 6.

Measures of maternal behaviors during mother-child interactions.

Maternal Behaviors	Author	Significance
Number of Utterances	Girolametto, et al. (1996a)	
Number of Words per Minute		*
MLU		*
Type Token Ratio		
Number of Focused Targets		*
Amount of Maternal Mealtime Communication	Black & Teti (1997)	*
% Turns	Girolametto (1988)	*
Mean Length turn-Utterances		
% Simultaneous turns		
% Contingent responsiveness		*
% Gaze		*
% Redirect		*
% Topic exchanges		*
% Failed invitations		*
Comments about Print	Justice & Ezell (2000)	*
Questions about Print		*
Requests about Print		*
Tracking Print		*
Pointing to print		

CHAPTER 2

METHODS

Design

This study used a randomized pretest-posttest control-group design. There were two levels of treatment, experimental and control. The experimental treatment involved four “Tips About Talk” parent-training workshops. The control treatment was four nutrition parent-training workshops. Both treatments were administered in a group setting. The dependent measures were collected before and after the workshops. Tools used to collect the dependent measures were a questionnaire and a videotaped mother-child language sample. The two graduate students who collected and analyzed the data were blind to each dyad’s treatment assignment during the collection of pre and post data and during the transcription, coding, and scoring phases of the study.

Participants

Seven adolescent mother-child dyads served as participants. Originally, there were eight dyads, but one dyad dropped out after the first workshop. At the time of the study, all of the participating mothers were single, African American, and enrolled in the Baton Rouge YWCA Lafan Evenstart GED program. The mean age of the mothers was 20.57 years ($SD=4.43$; range 17-30). The mean educational level was 9.29 years ($SD=.95$; range 8-11). All of the mothers reported that they attended regular education in elementary and middle school and were currently receiving some financial assistance. See Table 7 for a detailed profile of the mothers.

Table 7.

Profiles of mothers.

Number	Age in years	Education Level in years	Financial Aid	Number of Children
1	18	9	WIC	1
2	18	9	Food Stamps	1
3	21	10	WIC	2
4	17	9	Medicaid, WIC	2
5	30	9	Food Stamps, Medicaid	2
6	19	8	WIC, Medicaid	1
7	21	11	Food Stamps, WIC, Medicaid	2

The children were between the ages of 24 and 67 months. Their average age was 39.0 months (SD=14.54, range = 24-67). Three of the children were males, and four were females. Of the seven children, three did not have any siblings, three were first born and had siblings and one was second born. All were healthy and did not present frank neurological impairments or impairments in vision or hearing per parent and program director's reports. The children also were identified as developing language normally per mother and teacher report.

To further document each child's developmental level, the mothers were asked to complete an Ages & Stages Questionnaire (A&S; Squires, Potter, and Bricker, 1999). This questionnaire contains 30 items divided into five subtests. These subtests include communication, gross motor, fine motor, problem solving, and personal-social aspects of language. For each item, the mothers were asked to indicate "yes," "sometimes," or "not yet." As indicated by the A&S manual, a "yes" response was scored as ten points, a "no" response was scored as five points, and a "not yet" response was scored as zero points. A total for each subtest was calculated by totaling the scores for each of the five questions in the respective subtest. The maximum score for each subtest was 60 points. The

composite score reflects the child’s average score across all five subtests. Although the manual provides slightly different cutoff scores for each age range, a score that approximates 40 or greater is considered age-appropriate for most ages. As can be seen in Table 8, all of the children earned composite scores greater than 40.

Table 8.

Profiles of children.

Number	Age in months	Sex	Birth Order	A&S comm	A&S gross	A&S fine	A&S prob	A&S persoc	A&S composite
1	24	female	1	35	55	50	25	45	42
2	25	male	1	60	45	30	60	40	47
3	36	female	1	60	50	40	55	60	53
4	38	female	1	40	60	50	40	35	45
5	37	female	2	50	40	30	35	55	42
6	46	male	1	45	50	35	55	55	48
7	67	male	1	55	55	45	60	60	55

Questionnaire

The questionnaire included 30 items (see Appendix A). For each item on the questionnaire, the participants were provided a six-point Likert scale. Twenty of the items focused on child speech and language topics. These items included five items from material covered in each of the four workshops. Of the 20 child speech and language items, the participants were asked to rate their knowledge of children’s speech and language development on 15 of the items and rate their use of different language facilitation techniques on five of the items. Another ten items were questions regarding the participants’ knowledge of basic nutrition. These items were included on the questionnaire as foil items. Since nutrition was not discussed in any of the experimental sessions, the participants’ ratings were not expected to change as a result of attending the workshops.

To obtain pretest data, the questionnaire was distributed in the first ten minutes of the first session to both the experimental and control groups. The same questionnaire was distributed in the last ten minutes of the final session for post-test data.

Mother and Child Play Sessions

Prior to the parenting sessions and within one-week of the last parenting session, the mother-child dyads were asked to play together in a private room at the center. Each play session lasted 30 minutes (range = 24.67 to 31.02 minutes).

The materials used to collect the data from the mother-child interactions included video equipment, audio recording equipment, and a toy box. The video equipment included a Sony Digital 8 Handy Cam and a tripod. The audio equipment included a Sony professional recorder. Two external microphones with six foot cords were run from the audio recorder and clipped onto each mother and child. The toy box included small plastic food items, a picnic table, Clifford the Big Red Dog (Birdwell, 1963), If You Meet a Dragon (Cowley, 1983), a baby doll, two bottles, a wash cloth, powder, a Fisher Price garage and gas station set, two cars, and six small people.

Parent-Training Programs

Within one month of the first videotaped play session, the mothers began their respective parent-training programs. The programs were held concurrently in separate rooms at the center for four consecutive weeks. All sessions were one hour long.

Experimental Parent-Training Program. An SLP and three graduate clinicians administered the experimental parent-training program. The SLP held a master's degree in Speech-Language Pathology and a Certificate of Clinical Competency in Speech-Language-Pathology issued by the American Speech-Language Association. She also

had eight years of experience working with child language disorders. The clinicians were graduate students in COMD at Louisiana State University who were enrolled in the “Tips About Talk” clinic practicum.

The experimental parent-training program included the “Tips About Talk” curriculum. The curriculum involved four one-hour workshops. The themes of the workshops were Child Speech and Language Development, Storybook Telling/ Reading, Play, and Daily Activities. Following each workshop, the mothers received a packet that included the information provided in the sessions. Each workshop is summarized below.

The first training session focused on child speech and language development between the ages of birth and five years. In this session, clinicians provided the mothers with an introduction to speech and language terms, such as articulation and fluency; developmental milestones; possible causes of delays; and general information on different types of communication disorders.

The second session focused on storybook reading. In this session clinicians discussed some of the benefits of talking to children and introduced different types of positive talking strategies to use during storybook telling/ reading. The session included a discussion of different types of books and storybook levels and live demonstrations of positive story telling/ storybook reading. Participants role-played strategies during book reading and generated their own 5-utterance story to a partner. Discussion and modeling were provided to show the mothers how to use story telling to calm a child and teach basic life skills such as solving problems and negotiating with a peer or family member.

The third session focused on play. In this session, clinicians again discussed the value of talking to children. They also defined the term play and demonstrated how to

use positive talking strategies during play. The connection between play and language development and the adult's role in children's play was highlighted. Finally, the clinicians discussed the role of toys in play. Positive talking strategies that were modeled for the mothers included self-talk, repetition, revision, expansion, cloze, and conversational starters. Participants again role-played the strategies during hypothetical child-adult play activities.

The fourth session focused on enhancing children's language development through daily activities. In this session, the clinicians reiterated to the mothers the importance of talking to their children and taught them to use positive talking strategies during dressing, snacks, meals, bedtime, and when riding in the car/ bus. The session included a review of the positive talking strategies, a discussion of the mothers' perceptions of their mother-child interactions during daily living activities, and role playing of the positive talking strategies during hypothetical situations. Since the target activities (mealtime, bedtime, etc.) can lead to episodes of parent-child conflict, the ways mothers could use talking to avoid/ reduce conflict were highlighted. A craft activity involving recipes that involve children in the cooking was completed.

Control Parent-Training Program. A trained nutrition assistant and three graduate clinicians administered the parent-training control program. The nutrition assistant was part of the Expanded Food and Nutrition Education Program (EFNEP) that was administered by the LSU extension program. The clinicians were graduate students in COMD at Louisiana State University who were enrolled in the "Tips About Talk" clinic practicum.

The control parent-training program was a modified curriculum from EFNEP. The curriculum involved four one-hour workshops. The workshops were designed to teach low-income audiences how to improve their dietary practices and become more effective managers of available food resources. There are twelve themes for the program. The four themes that were presented during this current study were making healthy food choices, the food guide pyramid, understanding the “nutrition facts” label, and managing your food dollars. During the sessions, two meals were prepared, the participants made cookbooks, and cooking utensils and toys were raffled.

Procedures

Recruitment, Consent, and Group Assignment. Written consent was obtained from the mothers using the following procedures. First, a general information flyer was given to all participants at the community center (Appendix B). Next, a meeting at the center was conducted to explain the study requirements and to obtain socioeconomic and demographic information from each mother (Appendix C). If the mother agreed to participate, she was asked to read and sign the consent form (Appendix D). After signing the consent forms, the participants were paired according to their children’s age, and then members from each pair were randomly assigned to the experimental and control groups. All data sheets, questionnaires, videotapes, and transcriptions of the mother-child dyads were assigned an alpha code for confidentiality.

Language Sample Transcription and Coding. The play sessions were transcribed using Systematic Analysis and Language Measure, SALT. An E identified the mothers’ utterances, and a C was used to identify the children’s utterances. Repetitions and revisions were marked. All questions were identified by “?”. Bound morphemes were

indicated with slashes (ie, /). One of the two graduate students (the author and another student completing a thesis with these data) transcribed the samples. Each transcriber listened to the audiotapes three times and watched the videotape at least once. Utterances or words in utterances that remained unintelligible after the four passes were marked as unintelligible and not included in the analyses.

From these transcriptions the following dependent measures were calculated:

1. Mother's Mean Length Utterance (MLU): Calculated as the total number of words divided by the total number of utterance produced by the mother. MLU was calculated using only complete and intelligible utterances.
2. Mother's Number of Complete and Intelligible Utterances per Minute:
Calculated as the total number of complete and intelligible utterances produced by the mother divided by the length (in minutes) of the play session.
3. Mother's Number of Different Word Types spoken per a Random 100 Utterances: This measure was calculated by SALT.
4. Mother's Total Number of Word Tokens spoken per a Random 100 Utterances: This measure was calculated by SALT.
5. Number of affirmations made by the mother [aff]: Utterances of explicit mother approval and utterances that included the words "yes," "yeah," "sure," and "good" were coded as affirmations. Note that "uhhuh" functioning as "yes" was coded as affirmative; however, "uhhuh" functioning as a filler word was not coded. (Examples: "Sure is;" "Good, that is a dog".)
6. Number of prohibitions made by the mother [pro]: Utterances of explicit parent disapproval and imperatives that included the words, "Don't," "Stop,"

“No,” or “Can’t” were coded as prohibitions. “No” functioning as a negation of the prior utterance was not included in this category.

7. Number of directives made by the mother [dir]: Utterances that specified the expected verbal or action response were coded as directives. (Examples: “Look,” “Put the car right here,” “Get back a little bit so I can see,” “Say baby,” and “Stand up.” For the purpose of this study, questions did not function as imperatives.
8. Number of comments the mother made about reading [rc]: Utterances that included referents to the books, attempts to engage the child in book reading, and comments about the story were coded as reading comments. (Examples: Wanna read?, Let’s read a book., Where’s the dog hiding?)
9. Number of utterances the mother read verbatim: Utterances of the mother reading the story verbatim were marked with [r] while transcribing.
10. Number of literacy events excluding reading: Utterances that included referring to reading episodes outside of the play session, reading words on toys, and spelling were coded as literacy events [l]. (Examples: That says chocolate milk., What book did she read?)
11. Number of spelling events: Utterances that included spelling were coded as [sp] while transcribing.

To locate utterances coded as affirmatives, prohibitions, directives, comments about print, and literacy events, a list of words were searched using the find/ replace command in SALT (see Appendix E). For utterances identified as involving print or literacy, visual

inspection of five utterances before and after each coded utterance also were examined and coded when appropriate.

Reliability

Twenty percent (n=3) of the video samples were independently transcribed by a second graduate student. Transcription agreement was determined at the utterance boundary level and morpheme level for all complete and intelligible utterances in the samples. The total percent of agreement was calculated by dividing the total number of agreements by the total number of opportunities for agreement and multiplying by 100. For utterance boundary decisions, there were 11,889 (96%) agreements out of a total of 11,974 possible utterances. Intertranscriber agreement for individual samples ranged from 91% to 99%. For morpheme identification within the utterances, there were 7,627 (96%) agreements out of a total of 7,866 morphemes. Intertranscriber agreement for individual samples ranged from 92% to 99%.

CHAPTER 3

RESULTS

The results of this study are addressed in two principle sections. The first section includes analyses of data from the questionnaires. The second section evaluates the data collected from the language samples.

Questionnaire

The first objective of this study was to determine the extent to which the participants' knowledge of child speech and language development and use of positive talking strategies changed as a result of attending the "Tips About Talk" sessions. Recall that the participants completed a 30-item questionnaire before and after attending the sessions. Twenty of the items were related to child speech and language. Ten of the items were related to nutrition. On the scale used to rate these items, zero represented the lowest possible rating and five the highest. Table 9 lists the mothers' individual ratings on the questionnaire.

Table 9.

Individual ratings on questionnaire.

	Control			Experimental			
Mother	1	2	3	1	2	3	4
Speech and Language Items							
Pretest	2.40	3.85	3.20	3.40	4.90	4.10	2.85
Post-test	3.20	3.75	3.55	4.60	4.95	4.30	4.90
Nutrition Items							
Pretest	1.20	2.80	1.60	1.80	4.90	2.00	1.20
Post-test	2.70	3.10	2.90	4.80	4.90	2.80	4.00

Visual inspection of Table 9 indicates that one of three mothers in the control group increased her ratings on the speech and language items from pre to post-testing, while all four of the

mothers in the experimental group increased their ratings. For the nutrition items, all of the mothers increased their ratings from pre to post.

Ratings of the control and experimental groups are provided in Table 10. For this table, items referring to speech and language development and nutrition were averaged separately.

Table 10.

Group ratings on questionnaires.

	Control	Experimental
Speech and Language Items		
Pretest	3.15 (0.73)	3.81 (0.89)
Post-test	3.50 (0.28)	4.69* (0.30)
Nutrition Items		
Pretest	1.87 (0.83)	2.48 (1.65)
Post-test	2.90 (0.20)	4.13 (0.97)

*p values are statistically significant ($p \leq .05$)

Four independent t-tests were run to examine whether the experimental and control groups differed in their ratings at pre and post-testing. For both the speech and language and nutrition items, no significant differences were found at pretest between the experimental and control groups. At post-test, however, the mothers in the experimental group provided significantly higher ratings for the speech and language questions than those in the control group $t(5)=5.32$, $p=.003$. No significant differences were found at post-test between the experimental and control groups for the nutrition items.

The second analysis examined the questionnaire data as a function of workshop topic.

To do this, items from each workshop were averaged and eight independent t-tests were completed. The average ratings for each workshop are located in Table 11.

Table 11.

Group ratings per workshop.

	Control	Experimental
Workshop 1		
Pretest	2.20 (1.31)	3.10 (1.43)
Post-test	3.00 (0.60)	4.25 (0.76)
Workshop 2		
Pretest	2.80 (1.20)	3.25 (1.45)
Post-test	3.13 (0.31)	4.85* (0.30)
Workshop 3		
Pretest	3.67 (0.42)	3.90 (0.82)
Post-test	3.67 (0.50)	4.70* (0.20)
Workshop 4		
Pretest	3.93 (0.12)	5.0* (0)
Post-test	4.20 (0.20)	4.95* (0.10)

*p values are statistically significant ($p \leq .05$)

For items from workshops one, two, and three no significant differences were found between the experimental and control groups at pretest. At post-test, the mothers in the experimental group rated the items for workshops two, three, and four significantly higher than the mothers in the control group; two: $t(5)=7.44$, $p=.001$, three: $t(5)=3.822$, $p=.012$, four: $t(5)=6.62$, $p=.001$. A group difference was not found for workshop one.

The third analysis was completed to determine if there was a significant difference between the knowledge and strategy based items on the questionnaire. Recall that 15 of the

speech and language items were related to the mothers' knowledge of child development and five of the items were related to the mothers' use of positive talking strategies. To complete this analysis, the participants' ratings for each type of item were averaged (see Table 12).

Table 12.

Group ratings on knowledge-based and strategy-based questions.

	Control	Experimental
Knowledge-Based		
Pretest	3.04 (0.84)	3.70 (0.93)
Post-test	3.38 (0.41)	4.62* (0.35)
Strategy-Based		
Pretest	3.47 (0.46)	4.15 (0.85)
Post-test	3.87 (0.12)	4.90* (0.20)

*p values are statistically significant ($p \leq .05$)

Four independent t-tests were completed to analyze these data. No significant differences were found at pretest between the experimental and control groups. At post-test, however, the mothers in the experimental group provided significantly higher ratings than those in the control group for both the knowledge and strategy based items; knowledge: $t(5)=4.364$, $p=.007$, strategy: $t(5)=7.900$, $p=.001$.

Language Samples

The mother-child language samples also were collected before and after the workshops. For the purposes of this study, only the mothers' utterances were analyzed. A total of 6748 utterances were collected from the mothers during the play sessions, 6003 of which were transcribed as complete and intelligible, 3251 at pretest and 2752 at post-test. Mothers in the control group produced 2693 complete and intelligible utterances. Mothers in the experimental group produced 3823 complete and intelligible utterances. Measures taken

from the samples were: number of complete and intelligible utterances, number of complete and intelligible utterances per minute, mother's MLU in morphemes, and number of different word types and word tokens that were spoken by mother per a random 100 set of complete and intelligible utterances. Table 13 provides a list of each mother's language measures.

Table 13.

Individual language sample measures.

	Control			Experimental			
Mother	1	2	3	1	2	3	4
# of Complete & Intelligible Utterances in sample							
Pretest	511	483	283	548	455	527	444
Post-test	509	470	210	466	409	328	360
Complete & Intelligible Utterances per minute							
Pretest	16.77	16.04	9.37	18.12	15.17	17.02	18.00
Post-test	16.41	15.24	7.14	15.03	13.56	10.92	11.71
MLU in Morphemes							
Pretest	4.50	4.81	3.57	4.13	4.28	4.93	4.66
Post-test	4.87	4.49	4.41	3.80	4.26	4.62	4.80
# of different word types per random 100 utts							
Pretest	96	113	79	145	113	137	159
Post-test	106	114	147	82	119	127	156
# of different word tokens per random 100 utts							
Pretest	423	390	305	421	404	442	500
Post-test	428	431	389	395	365	431	386

Through visual inspection of Table 13, all of the mothers in both groups decreased the number of complete and intelligible utterances they produced, from pre to post-test. One of the three mothers in the control group decreased her MLU, while three of the four mothers in the experimental group decreased their MLUs. In a random set of 100 complete and intelligible utterances that were spoken by the mother, all three of the mothers in the control

group increased their number of word types and tokens spoken from pre to post-testing. However, three of the four mothers in the experimental group decreased their number of word types spoken from pre to post-testing, and all four decreased their number of word tokens spoken.

Table 14 presents group averages and the difference between the pre and post sessions for each of these maternal measures. To examine these data, four t-tests were run on the difference scores to examine whether group effects could be identified between the experimental and control mothers. The experimental group was found to reduce their productions of word tokens from pre to post-testing as compared to the control group, $t(5) = -2.74$, $p = .041$. No other group differences were statistically significant.

The third objective of this study was to determine the extent to which the participants altered the characteristics of their speech acts as a result of attending the “Tips About Talk” sessions. Three different behaviors were coded: affirmatives, prohibitions, and directives. Table 15 provides a frequency count of each mother’s use of these speech acts. Also reported is the percentage of each speech act as a function of the number of complete and intelligible utterances spoken by each mother. For the control mothers, two of the three increased their use of affirmatives, all increased their use of prohibitions, and one increased her use of directives when pre and post data were compared. For the experimental mothers, one of the four increased her use of affirmatives, two decreased their use of prohibitions, and three decreased their use of directives.

Table 14.

Group language sample measures.

	Control	Experimental
Complete and intelligible utterances per minute		
Pretest	14.06 (4.08)	17.07 (1.36)
Post-test	12.93 (5.05)	12.80 (1.85)
Difference	-1.13 (0.98)	-4.27 (2.30)
MLU in morphemes		
Pretest	4.30 (0.65)	4.51 (0.36)
Post-test	4.64 (0.26)	4.37 (0.44)
Difference	.30 (0.58)	-0.13 (0.23)
Number of different words per random 100 utterances		
Pretest	96 (17.00)	138.50 (19.28)
Post-test	122.33 (21.73)	121.00 (30.47)
Difference	26.33 (36.36)	-17.50 (31.03)
Number of different word tokens per random 100 utts		
Pretest	372.67 (60.88)	441.75 (41.83)
Post-test	416.00 (23.43)	394.25 (27.54)
Difference	43.33 (39.55)	-47.50* (45.79)

*p values are statistically significant ($p \leq .05$)

Table 15.

Individual use of speech acts.

	Control			Experimental			
Mother	1	2	3	1	2	3	4
Affirmatives							
Pretest	3 1%	29 6%	34 12%	4 1%	28 6%	7 1%	11 2%
Post-test	20 4%	81 17%	15 4%	9 2%	25 6%	7 2%	8 2%
Prohibitions							
Pretest	9 2%	20 4%	2 1%	11 2%	11 2%	16 3%	7 2%
Post-test	42 8%	59 13%	16 8%	12 3%	5 1%	13 4%	9 3%
Frequency of Directives							
Pretest	234 46%	116 24%	61 22%	204 37%	48 11%	151 29%	90 20%
Post-test	254 50%	49 10%	48 23%	131 28%	65 16%	77 23%	53 15%

The mean frequencies, average percentages, and difference scores from the pre to post-testing sessions for each speech act are presented in Table 16. Three t-tests were run on the difference scores to examine whether the experimental and control groups differed on these measures from pre to post-testing. One comparison revealed significant group differences. Specifically, the difference scores of the two groups' use of prohibitions were significantly different, $t(5)=9.00$, $p \leq .001$, with the control group's rate of prohibitions increasing and the experimental group's rate of prohibitions slightly decreasing from pre to post sessions.

The final analysis focused on the mothers' use of preliteracy behaviors during the mother-child play sessions. To complete this analysis, four different behaviors were coded:

verbatim reading, reading comments, literacy events, and spelling. Table 17 lists frequency counts of each mother's use of these strategies.

Table 16.

Group use of speech acts.

	Control	Experimental
Affirmatives		
Pretest	22.00 (16.64) 30%	12.50 (10.72) 24%
Post-test	38.67 (36.75) 27%	12.25 (8.54) 20%
Difference	16.67 (35.50) 3%	-0.25 (3.78) .4%
Prohibitions		
Pretest	10.33 (9.07) 2%	11.25 (3.68) 2%
Post-test	39.00 (21.66) 9%	9.75 (3.59) 2%
Difference	28.67 (13.05) 7%	-1.50 (3.70) .3%*
Directives		
Pretest	137.00 (88.39) 30%	123.25 (68.46) 24%
Post-test	117.00 (118.65) 27%	81.50 (34.42) 20%
Difference	-20.00 (43.92) 3%	-41.75 (42.78) 4%

*p values are statistically significant ($p \leq .05$)

Table 17.

Individual use of preliteracy strategies.

	Control			Experimental			
Mother	1	2	3	1	2	3	4
Verbatim Reading							
Pretest	13	44	8	53	15	8	13
Post-test	0	11	54	2	10	6	0
Reading Comments							
Pretest	0	32	1	96	9	14	39
Post-test	10	8	11	26	2	6	4
Literacy Events							
Pretest	0	0	0	0	0	1	21
Post-test	0	23	0	0	0	0	2
Spelling							
Pretest	0	0	0	0	0	0	1
Post-test	0	0	0	0	0	0	0

This table shows that one of three mothers in the control increased her occurrence of verbatim reading from pre to post-testing. None of the mothers in the experimental group demonstrated an increase. In addition, two of the three mothers in the control group increased their occurrence of reading comments, while none of the mothers in the experimental group did. Only one mother in the control group increased her number of literacy events (i.e. reference to a book or reading situation not provided in the toy box), and none of the experimental mothers increased her use of literacy events. Finally instances of spelling did not increase for any of the mothers in either group from pre to post-testing.

Table 18 presents average frequency counts of the mothers' literacy acts. For this table, the different literacy acts were combined because the frequency of each type was low. The percentages of occurrence of these preliteracy strategies also were calculated as a percentage of complete and intelligible utterances.

Table 18.

Group use of preliteracy behaviors.

	Control	Experimental
Pretest	31.25 (20.25) 5%	67.50 (31.25) 13%
Post-test	39.00 (27.65) 14%	14.50 (9.43) 4%
Difference	10.67 (49.57) 6%	-53.00 (52.58) 3%

*p values are statistically significant ($p \leq .05$)

One t-test was completed to analyze these data. No significant differences were found from pre to post-testing between the experimental and control groups.

CHAPTER 4

DISCUSSION

The purpose of the current study was to examine the effect of the “Tips About Talk” parent-training program on the abilities of teen mothers to foster their children’s language development during play. Two measures were used to measure the effectiveness of the program. The first measure was a questionnaire on which the mothers rated their knowledge and use of positive talking strategies. The second measure was a recorded language sample of the mother and child playing together. Both of these measures were completed prior to the first workshop and following the final workshop.

The following chapter is divided into three sections. The first section includes a discussion of the results as they relate to the three research questions presented in the Introduction. In the second section, the implications of the research findings are presented. In the final section, limitations of the study and suggestions for future research are presented.

Interpretation of the Results as they Relate to the Research Questions

The three questions presented in the Introduction guided the research. The first question focused on the extent to which the participants changed their knowledge of children’s speech and language development and their use of positive talking strategies as a result of attending the “Tips About Talk” sessions. The findings indicate that the mothers in the experimental group rated themselves higher on the 20 speech and language items than the mothers in the control group after attending the sessions. The findings also show that the experimental mothers did not rate themselves significantly higher than the other group on the ten nutrition items. Taken together these findings suggest that the “Tips About Talk”

workshops were effective in changing the mothers' knowledge of child speech and language development and positive talking strategies.

When the items were divided by workshop, the mothers in the experimental group showed higher post-test ratings than the mothers in the control group for workshops two, three, and four. This suggests that workshops two, three, and four were more effective than workshop one in increasing the mothers' knowledge and use of positive talking strategies.

In the fall of 2000 and spring of 2001, the analysis completed on the questionnaire was done with the items categorized as either knowledge or strategy-based. To facilitate comparisons between the data from this study and the data previously collected from "Tips About Talk" participants, the data were compared using this same grouping method. Using this grouping method, the experimental group mothers' ratings of the knowledge and strategy-based items demonstrated a greater increase than did the control group mothers' ratings from pre to post-testing. The results replicate the results that were obtained in the fall of 2000 and spring of 2001. Table 19 provides a summary of pre and post averages of the previous "Tips About Talk" workshops (i.e. data from the fall of 2000 and spring of 2001). The current data are listed as fall of 2002.

The results for this particular study resemble those found in the spring of 2001. One striking difference across semesters is that the pre-test scores were higher for the spring of 2001 and fall of 2002 as compared to the fall of 2000. One reason for this could be that a considerable amount of professional jargon was removed from the questionnaire after the first semester.

Table 19.

Summary of “Tips About Talk” data.

Semester	# of Participants	Pre Ratings	Post Ratings
Fall 2000	172		
Knowledge-based items		3.06	4.22*
Strategy-based items		4.07	4.44*
Spring 2001	53		
Knowledge-based items		3.69	4.58*
Strategy-based items		4.36	4.78*
Fall 2002	4		
Knowledge-based items		3.70	4.15*
Strategy-based items		4.62	4.90*

*p values are statistically significant ($p \leq .05$)

The findings from the current study also can be compared to the other studies presented in the literature review that used questionnaires to measure maternal perceptions. These studies included those conducted by Niccols and Mohamed (2000), Black and Teti (1997), Emmons and Nyttul (1994), and Justice and Ezell (2000). Recall that Niccols and Mohamed (2000) and Emmons and Nystul (1994) used only group-based intervention, while Black and Teti (1997) used a video as their method of intervention, and Justice and Ezell (2000) used individual feedback sessions as their method of intervention. In all of these studies, the mothers in the experimental groups showed greater change in their ratings of themselves on the questionnaires than those in the control groups for at least one measure. The findings of the current study are consistent with these previous studies. A strength of the current work was the inclusion of the nutrition items on the questionnaire. No other study reviewed incorporated foil items into their research. The finding that group differences were found on the speech and language questions and not on the foil items provides strong evidence that the workshops were effective.

The second question focused on the extent to which the mothers altered their language interactions with their children as a result of attending the “Tips About Talk” sessions. The maternal behaviors that were measured included: MLU, number of complete and intelligible utterances, number of complete and intelligible utterances per minute, number of different word types and tokens per a random set of 100 utterances, and use of affirmatives, prohibitions, and directives. The results of the current study indicated that the maternal behaviors, use of different word tokens and use of prohibitions, were affected by the mothers’ attendance at the sessions. Specifically, the experimental mothers showed a decrease for both of these behaviors while the control mothers showed an increase. Trends, however, were noted in other areas. For example, the experimental mothers showed a decrease in their MLU (pre: 4.51, post: 4.37), while the control mothers showed an increase (pre: 4.30, post: 4.64). This is consistent with Girolametto’s (1996a) findings. In his study, the experimental mothers showed a greater decrease in their MLU (pre: 3.84, post: 3.15) than the control mothers did (pre: 3.92, post: 3.73). Note that in his study, the children were younger (22-33 months). Also, Girolametto’s mothers were older (~ 35 years), had completed high school, and were classified as middle class.

The third question focused on the extent to which the mothers’ use of behaviors that facilitate children’s preliterate development increased as a result of attending the “Tips About Talk” sessions. The maternal behaviors that were examined included: verbatim reading, reading comments, literacy events, and spelling. No significant differences were found between the groups in any of the areas from pre to post-testing. Visual inspection of the data indicated that six of the seven mothers read more at pretesting than they did at post-testing.

The study in the literature review that most closely resembles this portion of the current study is the one conducted by Justice and Ezell (2000). Recall that in Justice and Ezell's (2000) study, 28 parent-child dyads participated in a four-week home-based book reading intervention program. Unlike the current set of findings, the mothers who participated in Justice and Ezell's study increased their use of comments about print, questions about print, and tracking print. Note that the current study greatly differed from the Justice and Ezell (2000) study. The current study's parent-training program spent only one hour discussing book reading strategies, and no individual parent-training sessions with the children were provided. In addition, mothers were not specifically told to read the books during the play sessions.

In conclusion, based on the questionnaire data, the experimental mothers felt that they knew more about speech and language development and used positive talking strategies more often after attending "Tips About Talk." Unfortunately, the language sample measures showed little statistical difference in the majority of the maternal behaviors that were measured. The experimental mothers did show a greater reduction in their use of word tokens and prohibitions from pre to post-testing. Although neither of these behaviors were a focus of the "Tips About Talk" sessions, perhaps the decreases were related to the mothers being encouraged to follow their child's lead. The finding that the experimental mothers' MLUs decreased from pre to post-testing also is an important finding. This result suggests that the mothers were making changes in their behaviors, but the changes were not dramatic enough to be statistically significant.

Implications of the Research Findings

The primary focus of the study was to evaluate the clinical utility of presenting the “Tips About Talk” program to teenage mothers. The results of the current study suggest that after attending “Tips About Talk” adolescent mothers feel that they know more about child speech and language development and positive talking strategies. The reduction of prohibitions and the trends in the language sample measures provide further support that “Tips About Talk” did affect the quality of the mothers’ interactions with their children. In other words, the results of the current study suggest that group-based parent-training can influence the knowledge and behaviors of teen mothers in a positive way.

Limitations of the Study and Suggestions for Future Research

One limitation of the current work was that the number of dyads in each group was small. Also, the children’s ages spanned a wide range. Furthermore, it is possible that the use of the same books in the pre and post-testing sessions may have resulted in the mothers and children being less interested in the books at post-test.

Since parent-training programs cited in the literature review showed that individual parent-training sessions are useful in altering parental behavior, it may be advantageous to include individual sessions in future studies that involve the “Tips About Talk” program. In addition, researchers may want to design separate sessions for play and book reading in order to more effectively encourage and measure change.

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APPENDIX A

QUESTIONNAIRE

“TIPS ABOUT TALK”

Your Initials: _____

Circle One

Parent/ Teacher/ Both

In order for us to improve our workshops, we are asking that you complete this questionnaire before the first workshop and following the final workshop. Your information will be confidential. Please circle the number that best describes your opinion. Thank you!

		No/Never	Yes/Always				
1	I am familiar with speech and language developmental milestones.	0	1	2	3	4	5
2	I know what articulation is.	0	1	2	3	4	5
3	I know what disfluent speech is and examples of the types.	0	1	2	3	4	5
4	I know some behaviors that negatively affect a child's voice.	0	1	2	3	4	5
5	I know what happens to a child's hearing when he/she has an ear infection.	0	1	2	3	4	5
6	I know the food pyramid.	0	1	2	3	4	5
7	I know which foods contain low density cholesterol.	0	1	2	3	4	5
8	I know the effect of caloric intake on a child's development.	0	1	2	3	4	5
9	I know which age children should switch from whole milk to low fat milk.	0	1	2	3	4	5
10	I know which foods lead to healthy bone development.	0	1	2	3	4	5
11	I am familiar with the different levels of reading.	0	1	2	3	4	5
12	I know what print awareness means.	0	1	2	3	4	5
13	I know how to scaffold a child's language during book reading.	0	1	2	3	4	5
14	When reading with a child, I use props on the book.	0	1	2	3	4	5
15	When reading with a child, I say more about the page than the printed words.	0	1	2	3	4	5
16	I know how to help children learn to talk when playing with toys.	0	1	2	3	4	5
17	When I play with toys with a child, I talk about what I am doing with the toy.	0	1	2	3	4	5
18	I know the difference between perceptual and functional play.	0	1	2	3	4	5

19	I understand the different levels of play.	0	1	2	3	4	5
20	I know how to follow a child's lead during play.	0	1	2	3	4	5
21	I know the role fiber in a child's diet.	0	1	2	3	4	5
22	I can calculate the total grams of fat from the total calories of an item.	0	1	2	3	4	5
23	I know how many calories are in a gram of protein.	0	1	2	3	4	5
24	I know the difference between high cholesterol and low cholesterol foods.	0	1	2	3	4	5
25	I know how to fix a meal that is low in fat.	0	1	2	3	4	5
26	I can think of 3 things that I can talk about when I am feeding a child.	0	1	2	3	4	5
27	I can think of 3 things that I can talk about when I am dressing a child.	0	1	2	3	4	5
28	I can think of 3 things that I can talk about when driving in a car with my child.	0	1	2	3	4	5
29	When a child asks me a question, I answer right away, even if I am busy.	0	1	2	3	4	5
30	When I work around the house with my child, I talk about what I am doing.	0	1	2	3	4	5

Site: _____

Pre or Post

Semester: Fall 2001 or Spring 2002

APPENDIX B

RECRUITMENT FLYER

Tips About Talk

as part of an

LSU Research Project

by the Department of Communication Sciences and Disorders



is looking for

MOTHERS WITH CHILDREN BETWEEN THE AGES OF 2 AND 5.

Participants who are selected for the project will receive **\$100 at the end of the study.**

Thank you for completing the form below!

***IF YOU ARE INTERESTED, PLEASE COMPLETE THIS PORTION AND RETURN IT
TO***

LEVYETTE MATHEWS BY MONDAY, OCTOBER 1st

Name_____

Phone Number(s)_____

Address_____

Your Age_____

Please list the gender (male/female) and age of each of your children

_____ Check here if you have attended previous Tips About Talk Workshops.

You will receive a follow-up phone call once the forms are collected.

APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

Name:
D.O.B.

Name of Child:
Age of child:
Gender of child:
D.O.B. of child:

Address:

Date of play session:

Number of children:

Age and gender of children:

Who lives in your home:

Are you a single/married/divorced?

What types of federal aid are you receiving?

What was the last grade you completed in school?

Have you previously attended a TIPS ABOUT TALK workshop?

APPENDIX D

CONSENT FORM

Study Title: Evaluating the Effectiveness of Parent Training Programs

Performance Sites: Child Care Centers in Baton Rouge

Contact: Janna B. Oetting, Ph.D.
225-388-3932
cdjanna @ LSU.EDU

Purpose of the Study: This study is intended to help us learn more about the effectiveness of parent training classes on families.

Subjects
(Inclusive Criteria)

Care Giver Receives services from a child care center in Baton Rouge
Lives in a one-parent household
Is the primary care giver to one or more children

Child Is 2 to 5 years of age
Is healthy and without developmental delays per primary care giver report

(Exclusive Criteria)

Care Giver Receives services for substance abuse or addiction
Receives services for other mental health related conditions
Received special education services in school as reported by self-report

Maximum number of subjects: 15 parent-child dyads

Study Procedures: We also will visit your home and conduct an informal interview with you about your home, parenting practices, and daily routines. We will use the Home Observation for Measurement of the Environment to guide the interview. The interview will take approximately one hour.

We will observe your child interacting in his/her classroom to document that he is developing normally. Your child also will be given three speech and language tests that are routinely given by speech language therapists to screen developmental delays in speech and language. Examples of tests we may use are: The Peabody Picture Vocabulary Test, The Goldman-Fristoe Test of Articulation, and the Comprehension Subtest of the Stanford Binet Intelligence Scale.

You and your child will be asked to play in a quiet area of your child's center two times and attend four 1-hour Parenting Classes that are scheduled at

your child's center. The play sessions will be scheduled approximately one month from each other (one before the 4 parenting classes and one after). For the play sessions, we will provide you a box of toys, two child books, and some pictures. The play sessions will last 30 minutes and be videotaped.

Benefits: This research is not intended to benefit you or your child directly. It may benefit future parents and child care professionals and society in general by helping us understand the needs of families.

Risks/Discomforts: There are no significant risks associated with you or your child's participation in this study.

Right to Refuse: Participation in this study is voluntary. You and your child have the right to withdraw from the study at any time without penalty.

Privacy: You and your child's identity will remain confidential. You and your child will be assigned a number, and only this number will appear on your data sheets. A key linking you and your child will be available only to those closely associated with the project. You and your child's identity will never be revealed in published articles or research reports.

The video component of the tapes also will not be shared with the public. If the tapes appear useful for teaching future parents and professionals about parent-child interactions, we will present only the audio component of the tapes, and all first and last names will be edited out of the tapes.

Financial Information: There is no direct cost to you or your child for participating. We will give you \$50.00 for each videotaped session, for a maximum of \$100.00 at the end of the study.

Withdrawal: You may choose not to participate or to withdraw from the study at any time with no jeopardy to services provided by your child care center or other penalty at the present time or in the future.

Removal: We reserve the right to discontinue your participation in the study if you share with us information during a session that indicates that you or your child do not meet the inclusive/exclusive criteria for research participation listed above.

The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225)578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a copy of this consent form if signed by me.

Janna B. Oetting, Ph.D. Date

The study subject has indicated to me that he/she is unable to read. I certify that I have read this consent form to the subject and explained that by completing the signature line above, the subject has agreed to participate.

Child's Name _____

APPENDIX E

CODING WORD LISTS

The following is a list of words that were searched using the find/replace command in SALT to facilitate coding. Once the words were found, the transcriber determined if the utterance met the specified speech act and preliteracy strategy criteria. The criteria are described in the coding section of Chapter 2.

Affirmatives:

Good
Yes
Yeah
Sure
Uhhuh

Prohibitions:

Don't
Stop
No
Can't

Directives:

Bath	Bathe
be careful	Bring
Brush	Close
Comb	Come
Count	Do
Drink	Drive
Dry	Eat
Feed	Feel
Fill	Find
Fix	Get
Give	Go
Gotta	got to
Grab	Hang
have to	has to
Help	Hold
Keep	Leave
Let	Listen
Look	Move
Open	Pat
Pick	Play
Point	Pour
Pretend	Pull

Pump
Put
Read
Say
Show
Sit
Stand
Take
Throw
Turn
Wash

Push
Raise
Rock
Send
Sing
Spell
Stay
Tell
Tie
Wait
Watch

Preliteracy strategies:

read
book
story
page
dog
Clifford
Emily Elizabeth
dragon
word
letter
that say

VITA

Sonja Pruitt graduated from Louisiana State University in 2000 with a Bachelor of Arts degree in communication disorders. Following graduation, she continued her education at Louisiana State University in the department of Communication Sciences and Disorders in pursuit of the degree of Master of Arts in speech-language pathology. During graduate school, Ms. Pruitt worked as a graduate assistant in the Program Department of the LSU Union and served as a Research Assistant in the Department of Communication Disorders with Dr. Janna Oetting.

Upon graduation, she plans to pursue doctoral studies in Child Language Disorders at Louisiana State University.